

Fig. 1



2/2	22	
0MLKSKTFLKKTRAGGVWKIVKEHYLRDDIGCGAPGCAACG- 0	40GAHEGPALEPQPQDPASSVCPQPHYLLPDTNVLLDQIDVLEDP-AIRNVIVLQTVLQEVRNRS 40GAHAGPALELQPRDQASSLCPWPHYLLPDTNVLLHQIDVLEHP-AIRNVIVLQTVMQEVRNRS 51DFGTNPLLKIENPVRNAKVGRHALIVDSTSLIRFYDLFDSS-LLRDLIVTQTVWEGVKAKA 55 KLPKDSRGNVLEPILSEKPMFLEK-FGHHYLIPDSNIFYHCIDALEHPNNFFDVIILQTVFSEISSKS 67 IVVPDAQNELPKFILSDSPLELSAPIGKHYVVLDTNVVLQAIDLLENPNCFFDVIVPQIVLDEVRNKS 60	0MDLKPNIRRKEKR-NLLKGEAALEKKGSIDRKTKNKAYPSTTHDPHQNDDSNIPGLGSGLLERI 70 QQQQLAQQTGQYLSGNSGSNNHFTPQPPHPHYNSNGNSPGMSAGGSRSRTHSRNNSGYYHNSYDNNNNSN 55 TETVVDRSVGPEKDIESIN-KDFLQRTKGLEPDIELKQLPQIKQEFNQRYKDRYVKPSEDWYVNSWRSLT
HS-HMC-Dis3 MM-hmc-Dis3 CE-Q17632-Dis3 SP-P37202-Dis3 SC-Q08162-Dis3 MM-LOBO HS-LOBO HS-LOBO SP-Z99259 SC-P24276-SSD1 SC-P24276-SSD1	Z 2 2 2 2 C C	#S-LUBU CE-Q09568-LOBO SP-299259 SC-P24276-SSD1 SC-P39112

Fig. 2a



3,	/22
HS-HMC-Dis3 102 APVYKRIRDVTNNQEKHFYTFTNELHRETYVEQEQGENANDRND MM-hmc-Dis3 102 APIYKRIRDVTNNQEKHFYTFTHVHHKETYIEQEQGENANDRNDQ17632-Dis3 111 VPAYKRMNSLCYEDAKDRFHVFMNEFHCETFSESSKFEDLS-RGEP37202-Dis3 122 IPLYMRMKRLCQEKTK-RFTFFSNEFFVDTFVERLDDESANDRND NM-LOBO 3 GPSYTRLRTLCRDSDDHK-RFIVFHNEFSEHTFVERLPNETINDRND MM-LOBO 0	HS-HMC-Dis3 146 RAIRVAAKWYNEHLKRWAADSQLQVILITND
S S S S S S S S S S S S S S S S S S S	CE-SP-

Fig. 2b



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	4/22	
EGNELESGKILFSEHLFLSKL EMNEIESGKIIFSEHLPLSKL SGNGNEKQIFDEYLSHDRI AIASKEQVESGTKNVYELHWSMSRL SFDKDLERDTFSDFTFPEYYSTARV EADIPEEGCGHHPL	KSVYPLYYDSATV SNSSVHSFSSQGNNNGGGRKSLFAPYLPQANI KNFSNQTNILPIVARQLITSRY 	NEENKETILQGLKHLNRAVHEDIVAVELLPKS-QWVAPS KEEEKEILIQGIKHLNRAVHEDIVAVELLPRS-QWVAPS -DQLTSWFITG-NNCNRAVNGDTVAVQLLPED-QWTAPE -GYNKPVLVSGRENLNRAVQGDIVCIQILPQD-QWKTEA -RFSKPVLIVGQKNLNRAFNGDQVIVELLPQS-EWKAPS
ANPELIDRIACLSEEGNEIESGKIIFSEHLFLSKLANPELIDRIAYLSDEMNEIESGKIIFSEHLPLSKLGKQALLDQMAAYESSGNGNE	YVKWWAEH -NNATEMVSSNAK LEPPAIFQQGHKHRA -QPESHHKHLPIGTV 	DNEENKEI DKEEEKEI DQLTSW GYNKPV
183 AIQEGIPAFTCEEYVKTLT 183 AVQEGIPAFTCEEYVKSLT 191 HYQHVMYLKEYIQNLEDP 199 AAEQGIQVSTLKDYVQYLP 207 EVESNIITKSLVQYIELLP	GDVVAVKIKPKEDWLVNYV	237 QQGIKSGTYLQGTFRASRENYLEATVWIHGDNEENKEI 237 QQGIKSGSYLQGTFRASRENYLEATVWIHGDKEEEKEI 242 MEGIASGTIKRGNFSVSRENYREATVIIDDQLTSW 257 LACIKNGEVHKGLINISTYNYLEGSVVVPGYNKPV 264 MGGLKNGVLYQGNIQISEYNFLEGSVSLPRFSKPV
HS-HMC-Dis3 MM-hmc-Dis3 CE-Q17632-Dis3 SP-P37202-Dis3 SC-Q08162-Dis3 MM-LOBO	HS-LOBO CE-Q09568-LOBO SP-Z99259 SC-P24276-SSD1 SC-P39112	HS-HMC-Dis3 MM-hmc-Dis3 CE-Q17632-Dis3 SP-P37202-Dis3 SC-Q08162-Dis3

Fig. 2c



5/22 -EDIPDFYVDGPIARNRAFHNDVVIVEPVMNN-DSPTEK -ALDADIYICGSKDRNRALEGDLVAVELLVVDDVWESKK -YMGPWQIPFFTLVGLVQKLDLNKALDDKNGINYLTSL EKEEKKRRKDASMQHDLI PLNSSDDYHNDASVTAATSNNFLSSPSSSDSLSKDDLSVRRKRSSTINNDSD -WVSTAAEPDSAR--INDLELITKRN--AH---SDEVPDSCLITIGAIVHILEKKHFRV--INSPTFVSTYWAIMQQQESNLWGEIHLN---TRGLSEKSLQKSAKWYILEKKHSRA--ELGGAMEHLERLEIKSVASFKGDS--R-SIVLDSEHFDVNDNPDIEAGDDDDNNESSSN'ITVISDKQRRLLAKDAMIAQRSKKIQ ---EDEENDDENDE--PKAKKSKKMTV----EEDVEKEEERERMLKTAVSEKMLK--EDDVEKDEERELLLKTAVSEKMLR-401 471 391 461 381 451 PELIQEGREVAGILRVNKKNRSDAMVSTDG I-LENHR-SAFACM-PAQISKLAWKDLPITTKKLQLLHRSLQN--VVLHDEGQN-----DDED---VKTADDMGN--WLDDEGON--YHTVNDIP--VKIKDHDD 441 KKGLKSGTLFKGTLR -VEK-1 1 1 361 431 KKIRLRDVEEY SNFLONG VN---NV 351 421 120 185 350 261 306 306 307 323 330 217 152 249 418 326 0 SP-Z99259 SC-P39112 MM-LOBO SC-P24276-SSD1 HS-HMC-Dis3 MM-hmc-Dis3 CE-Q17632-Dis3 SP-P37202-Dis3 SC-008162-Dis3 HS-LOBO CE-209568-LOBO SP-Z99259 SC-P24276-SSD1 SC-P39112

-TEKRCLRNE-IODNGV

-NNSPNK

-SGKTD-

-DRN-

0

HS-LOBO

CE-009568-LOBO

Fig. 2d



6/	22		TECH C	APRICEIVED.
551	4	RRIIVAIDGW RRIIVAIDHW RRIVVAIDHW KRIVISIDSW FICRIIDW	ENWIENILKHHDQLFSVEITRW ENADKYSEKLFVASIKRWFHNNGIIVA	~ 1600/2900
-	i i		ENWIENILK ENADK 	
531	1)	RQASKLEG- RQASALEG- EQAETLSQ- RQAPRLVG- RRAAELLD- RRAAELLD-		
[521	1	RIPRIRIET RIPRIRIEI LIPRIRIET RVPKIRFRT CLPKVRIRT	DVDKEFFSRP KRLPFITIHK KKVPLIAIPT ALYPSVIQLL 	
) -	SRRHLFTPADKRIPRIRIETRQASKLEG SRRHLFTPADNRIPRIRIETRQASALEG ARRHLFCPAERLIPRIRIETEQAETLSQ QQTVLLTPMDRRVPKIRFRTRQAPRLVG TQNVFVILMDKCLPKVRIRTRRAAELLD RVPRIYVPLKDCPQDFMTRPKDFANTL-	ATDSRVPRILIPKSDVDKEFFSRPKDFERFL-SLKNVEYVSKKSSYAIFIPKDKRLPFITIHKNDLSDLSGANSDNNKPPQSPKIAWFKPTDKKVPLIAIPTELAPKDFVSYREVNKFVKLVNERKYRDISALYPSVIQLLKDFAAGN	
-		DIKE DIKE TVKG TIAQSKGGS SVDP-QSSS	ATDS SLKNVEYVSKK ANSDNNKPPQS SYREVNKFVKL -	
791	4	LSKS LSKS LLPS VDNA LAPS ALFS	-PNVLFVP -GILRAPGWS LGLLRPSQQA IEKLEANS 561	
1		357 357 366 375 404 261	192 310 558 389	•
		HS-HMC-Dis3 MM-hmc-Dis3 CE-Q17632-Dis3 SP-P37202-Dis3 SC-Q08162-Dis3 MM-LOBO	HS-LOBO CE-009568-LOBO SP-Z99259 SC-P24276-SSD1 SC-P39112	

Fig. 2e

LKQRPTQKKNDDVEVEGQSLLLVEEEEINDKYKPLYAGHVVAVLDRIPGQLFSGT

179 292 488 365

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HS-LOBO

CE-209568-LOBO

SP-Z99259

\$C-P24276-SSD1

SC-P39112

MM-LOBO

-TALLSPISVTIIPLKSQHLYYAQV

-TRARVVAIEKRAEISKIV-

-AAGKLQLMPNSAN----

-STAKVVGIIKRNWR-EYC-

-PTGRVVGIIKRNWR-PYC-

-PTGRVVGIIKRNWR-PYC

-PTAKVVGILKRNWR-PYV-

340 340 349 358 387 244

-Dis3

CE-Q17632

SP-P37202-Dis3 SC-Q08162-Dis3

MM-hmc-Dis3

-PTAKVVYIQRRSWR-QYV-

-ATGILKLLADKNSD-LFK-





7/22

Fig. 2f



8/22

-EILK -EILK --DIQS --NIIK --NIVN --KILE -KILD --AAERATSVYLVQKVVPMLPRLLCE--ELCSLNPMTDKLTFSVIWKLTPEG---AASRGTTVYLVDKRIDMLPMLLGT--DLCSLRPYVERFAFSCIWEMDENA--SARRGT"IVYLCEKRIDMVPELLSS--NLCSLRSNVDRLAFSCIWEMNHNA-SVYLVQKVVPMLPRLLCE--ELCSLNPMSDKLTFSVIWTLTPEG--SARRGTTVYLCEKRIDMVPELLSS--NLCSLKCDVDRLAFSCIWEMNHNA--AALRGTTVYLCDRRIDMLPCLLSS--NLCSLRGEEERYAFSCIWTMTSSA--GAARGTSVYLVDKRIDMLPMLLGT--DLCSLKPYVDRFAFSVIWELDDSA--AAERNT 522 534 586 424 551 CE-Q17632-Dis3 SP-P37202-Dis3 SC-Q08162-Dis3 MM-hunc-Dis3 MM-LOBO HS-LOBO HS-HMC-Dis3

Fig. 2g



	9/22	
ASERGNSTYLSQTVIPMLPRILCEQLCSLNPGVDRLSFSTVFKMSYEAELYDAASRATTVYLVQKAIPMLPPLLCERLCSLNPNVERLAFSVFWKLDSNGKEIGKARKRSSAVFMPQKLVNLLPQSFNDELSLAPGKESATLSVVYTLDSSTLRIKS GISTDILNVALKRSFTTYLPDTVVPMLPQSICHLSDLGKQGQRTKTISFSVDVKITSKCSGKSIEIMYDS	DITTSLRGLNKLAKILKKRRIENGADUTTSLRGLNQLAKILKKGRIEKGADVALGLRGLMKLSKVLNARRTGNGAPLTQGMRVLLKLSKILKQKRMDEGA ISPEHSVEEVHQAVLNLHSIAKQLRQRRFVDGA ISPEHSVEEVHQAVLNLHSIAKQLRQRRFVDGA ISPEHSSEEVHQAVLNLHGIAKQLRQCRFVDGA ISDGNTPFEIKEKTLMLHRIAQVLRQKREDSGA IGGTHTPKDVETSILTLCEISRKLRKDRFAKGAYLSTVQEIARSFYARRINDPE	1 891 901
ILCEQLCSLNPG LLCERLCSLNPN SFNDELSLAPG SICHLSDLGKQGQR' -	O	871 881
TYLSQTVIPMLPR VYLVQKAIPMLPPI VFMPQKLVNLLPQS TYLPDTVVPMLPQS 	AEAQLRIDSANMNI AEAQMRIDSAAMNI EKAQEIIDDPKEQN ADAQARIDDQKMQI EQAQLRIDDKTQNI EHAQSMIESPTEK EHAQDFIENPEKDI SEAQGVIEGKSWDI EQLDEKLSTGSPTR EDVDRILGTPNSEZ	861
TDILLN	TKFTKSVINSKASL-YAEAQLRIDSANMND TRFTKSVINSKASL-YAEAQMRIDSAAMND VKYHKSLIKSKAALTYEKAQEIIDDPKEQN VHFTKSVIASKEAFSYADAQARIDDQKMQD WHFTKSVIRSREAFSYEQAQLRIDDKTQND EWFGRTIIRSCTKLSYEHAQSMIENPTEKIPEELPP VWFGRSVIRSRVKLAYEHAQSMIENPEKIPAKELPP TWGGRSVIRTCARLAYSEAQGVIEGKSWDDAVGKP TWVGESTISPSNILSLEQLDEKLSTGSPTS FKIRKGIVSNFPKATYEDVDRILGTPNSEAS	841 851
363 496 746 578 GIS 	574 TH 574 TH 586 VH 603 VH 415 VV 549 RV 548 TV	8
CE-Q09568-LOBO SP-Z99259 SC-P24276-SSD1 SC-P39112	HS-HMC-Dis3 MM-hmc-Dis3 CE-Q1,7632-Dis3 SP-P37202-Dis3 SC-Q08162-Dis3 MM-LOBO HS-LOBO CE-Q09568-LOBO SP-299259 SC-P24276-SSD1 SC-P24276-SSD1	

Fig. 2h



LTLSSPEIRFHMDSETHDPIDLQTKELRETNSMVEEFMLLANISVAKKIHEEFSEHALLRKHPAPPPSNY LTLASSEVRFDMDWESRTPKKVMEKQHLDTHSMVEEFMLLANISVAEKILEEYPDCALLRRHPVPLKESY

628 628 641

HS-HMC-Dis3 MM-hmc-Dis3 CE-Q17632-Dis3

LTLSSPEVRFHMDSETHDPIDLQTKELRETNSMVEEFMLLANISVAKKIHEEFSEHALLRKHPAPPPSNY

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RHAAPPLTNF RRHAAPPSTNF RRHPPPQTRML RRHPPPQTRML RRHASPKEKMI RRASPKEKQI RRQMQPIATKM LANKI LENKI	GMD GMD GKDGFSDIKL GTFAP GAYSY GLLQD GLLQD GLLQD GLLQD GLLQD GLLQDFEM GNFGEKFEM GRVD	
LNLASPEVRIQTDNETSDPMDVEIKQLLETNSLVEEFMLLANISVAQKIYDAFPQTAVLRRHAAPPLTNF LNLASPEVRVHMDSETSDPMEVEIKKLATNSLVEEFMLLANNISVARKIYDAFPQTAMLRRHAAPPSTNF LRLDQLKLAFTLDHETGLPQCCHIYEYRDSNKLVEEFMLLANMAVAHKIFRTFPEQALLRRHPPPQTRML LRLDQLKLAFTLDHETGLPQCCHIYEYRESNKLVEEFMLLANMAVAHKIHRAFPEQALLRRHPPPQTRML LRIELPRLKFALDBDK-KPQGVSIYEIKDSNKLVEEFMLLANMEVAKKIAENFPEQALLRRHPPPQTRML VEINSTELKFQLDEYG-MPNKCEVYEQTDANHLIEEFMLLANRSVAEHISKNFSNNSLLRRHASPKEKQI ATLLPTLSLLESLDDEKVKVDLNILDRTLGFVVINEIKRKVNSTVAEKIYTKLGDLALLRRQMQPIATKM AVIFGEGFNKGLVMLNADSEGELTEVTFSDQEETLSTILVSEMMILANTLTGRYFAENKI	VYFCS VYFSA VYFSA VYFSA VYFSA SYFCS CYFCS CYFCS CYFCS CYFCS	
LLANISVAQKI LLANISVARKI LLANMAVAHKI LLANMEVAKKI LLANMEVAKKI LLANKSVAEHI SKVNSTVAEKI LSTILVSEMMI	NTLLRILATI NTLLRILATI NTLLRILATI NTLLRILTTI NTLLRILTTI NTLVRIMSTI N-TLVRIMSTI N-TLVRIMSTI N-TLVRIMSTI N-TLVRIMSTI N-TLVRIMSTI N-TLVRIMSTI N-TLVRIMSTI N-TLVRIMSTI NTLVRIMSTI NTLVRIMSTI NTLVRIMSTI NTLVRIMSTI NTLVRIMSTI N	
LETNSLVEEFM LATNSLVEEFM LESNKLVEEFM LESNKLVEEFM LDSNKLVEEFM LGFVVINEIK LGFVVINEIK LEVTFSDQEETI	QAESPTFPYLA RAESPDFPYLA RCVDKKNPMLA ECVDPKEPYFN RCVDPEDPYFN KTFGDDKYSLA QTFGDDKYSLA KTKGDDKYSLA KYQGKSRLDMC KYQGKSRLDMC KYQGKSRLDMC KYQGKSRLDMC RLRSTFNEELV KIKDDDVRVGI STKKGIFPKLF	
LNLASPEVRIQTDNETSDPMDVETKÖLLETNSLVEEFM LNLASPEVKVHMDSETSDPNEVETKKLLATNSLVEEFM LRLDQLKLAFTLDHETGLPQGCHIYEYRDSNKLVEEFM LRIDQLKLAFTLDHETGLPQGCHIYEYRDSNKLVEEFM LRIELPRLKFALDEDK-KPQGVSIYEIKDSNKLVEEFM VEINSTELKFQLDEYG-MPNKCEVYEQTDANHLIEEFM ATLLPTLSLLESLDDEKVKVDLNILDRTLGFVVINEIK AVIFGEGFNKGLVMLNADSEGELTEVTFSDQEET	EILVKAARS-RNLEIKTDTAKSLAESLDQAESPTFPYL DILVKAARS-RNLEIKTDTAKSLADSLDRAESPDFPYL KPLVEAARH-RGFEIIVESGKGLADSLNRCVDKKNPML DSLQDILRVCKGMHLKCDTSKSLAKSLDECVDPKEPYF EILNEMLNTRKNMSISLESSKALADSLDRCVDPEDPYF SDLVEFCDQ-MGLPMDVSSAGALNKSLTKTFGDDKYSL SDLVEFCDQ-MGLPVDFSSAGALNKSLTQTFGDDKYSL KDVAEQCAR-IGFPLDGRTSGLLSTSLRKYQGKSRLDM NEFCHFLKS-MNFDFDASSSAAFNASMVRLRSTFNEEL ASFRKKIQN-FGYNFDTNTADELIKGVLKIKDDDVRVG GGVFRCYKQLPLGEVAQQQYDSMITSTKKGIFPKL	
TVRIQTDNETSINKVKHMDSETSI TAFTLDHETGI TLAFTLDHETGI TLKFALDEDK-I TLKFQLDEYG-P SLLESLDDEK FNKGLVMLN	RS-RNLEIKTI KS-KNLQIKTI RS-KNLQIKTI RH-RGFEIIVI RVCKGMHLKCI NTRKNMSISLE DQ-MGLPMDVS DQ-MGLPWDFS AR-IGFPLDGF KS-MNFDFDAS QN-FGYNFDTN KQLPLGEV	
658 LNLASPE 693 LNLASPE 546 LRLDQLK 173 LRLDQLK 485 LRIELPF 617 VEINSTE 849 ATLLPTI 704 AVIFGEG	698 EILVKAA 698 DILVKAA 711 KPLVEAA 728 DSLQDIL 763 EILNEML 616 SDLVEFC 243 SDLVEFC 554 KDVAEQC 686 NEFCHFL 919 ASFRKKI 764 GGVFRCY 981	
SP-P37202-Dis3 SC-Q08162-Dis3 MM-LOBO HS-LOBO CE-Q09568-LOBO SP-Z99259 SC-P24276-SSD1 SC-P24276-SSD1	HS-HMC-Dis3 RM-hmc-Dis3 CE-Q17632-Dis3 SP-P37202-Dis3 SC-Q08162-Dis3 MM-LOBO HS-LOBO CE-Q09568-LOBO SP-299259 SC-P24276-SSD1 SC-P24276-SSD1	

Fig. 2i



-HYA

--HFA

-PLSFYH-

-QEQFR--PAQFR-

758 778 791 791 826 680 307 616

MM-LOBO

HS-LOBO

CE-Q17632-Dis3 SP-P37202-Dis3 SC-Q08162-Dis3

CE-209568-LOBO

HS-HMC-Dis3 MM-hmc-Dis3

-HYA

-FHHYG

-FHHYG

-FRHYG

-FRHYG

EEKKFFVLKTLNLPYRSCLCDDTETSIHLSRGLNDYFLFKKEKLHMSVGVLFKLFDCLGTVPVPQYQHFG

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11	1/22	TECH CENT
WHHYAYGHYAHEM	LASPIYTHFTSPIRRYADVIVHRLLAVAIGADCTYPELTDFHKLADICKNLNFRHKMAQYAQRASVAFHT LASPIYTHFTSPIRRYADIIVHRLLAVAIGADCTYPELTDKHKLSDICKNLNFRHKMAQYAQRASVAFHT LACAIYTHFTSPIRRYADVIVHRLLAAAIGADDIQSGLLNQARCTKICTNINYRHKQAQYAGRASVQLNV LASPIYTHFTSPIRRYADVLAHRQLAAAIDYETINPSLSDKSRLIEICNGINYRHRMAQMAGRASIEYYV LAVDIYTHFTSPIRRYCDVVAHRQLAGAIGYEPLSLTHRDKNKMDMICRNINRKHRNAQFAGRASIEYYV LNVPLYTHFTSPIRRFADVIVHRLLAAALGYSEQPDVEPDTLQKQADHCNDRRMASKRVQELSIGLFF LNVPLYTHFTSPIRRFADVLVHRLLAAALGYRERLDMAPDTLQKQADHCNDRRMASKRVQELSIGLFF	LNUVDHYTHFTSPIRRYPDVIVHRQLAAALGYNERSERVPEEIQEICTRCNDTKLASKEASDESAMLYF LSFNHYTHFTSPIRRYPDIIVHRLLERSLKNTSPGIDKKN-CSLVAAHCNEKKEKSTTVQEDSQQLFL LNLPIYTHFTAPMRRYADHVVHRQLKAVIHDTPYTEDMEALKITSEYCNFKKDCAYQAQEQAIHLLL IGAKQYLTVTSPLRRFPDLINHLQIHRHLQKKPLCFNQTQIDSLIWPIQSRADILKRASRNSSTYWT
1101	KNLNFRHKM KNLNFRHKQ ININYRHKQ NGINYRHRM RNINRKHRN DHCNDRRMA	SIQEICTRCNDTKLASKEASDES CN-CSLVAAHCNEKKEKSTTVQEDS IEALKITSEYCNFKKDCAYQAQEQA OTQIDSLIWPIQSRADILKRASRNS
1091	DFHKLADICI DKHKLSDICI NQARCTKIC DKSRLIEICI DKNKMDMICI DTLQKQAI	EEIQEIC KKN-CSLVA DMEALKITS NQTQIDSLI -
TD PDQ 	IGADCTYPELT IGADCTYPELT IGADDIQSGLL IDYETINPSLS IGYEPLSLTHR LGYSEQPDVEP LGYSEQPDVEP	LGYNERSERVP LKNTSPGID IHDTPYTE LQKKPLCF
1071	IVHRLLAVA IVHRLLAAA IVHRLLAAA LAHRQLAAA VAHRQLAGA IVHRLLAAA	IVHRQLAAA IVHRLLERS VVHRQLKAV INHLQIHRH -
1061	LASPIYTHFTSPIRRYADVIVHRLLAVAIGADCTYPELT LASPIYTHFTSPIRRYADIIVHRLLAAAIGADCTYPELT LACAIYTHFTSPIRRYADVIVHRLLAAAIGADDIQSGLL LAVDIYTHFTSPIRRYADVLAHRQLAAAIDYETINPSLS LAVDIYTHFTSPIRRYCDVVAHRQLAGAIGYEPLSITHR LNVPLYTHFTSPIRRFADVIVHRLLAAALGYSEQPDVEP	LNVDHYTHFTSPIRRYPDVIVHRQLAAALGYNERSERVP LSFNHYTHFTSPIRRYPDIIVHRLLERSLKNTSPGID LNLPIYTHFTAPMRRYADHVVHRQLKAVIHDTPYTE IGAKQYLTVTSPLRRFPDLINHLQIHRHLQKKPLCF
749 977 820 1051	765 LASPIYTH 765 LASPIYTH 848 LACAIYTH 798 LASPIYTH 833 LAVDIYTH 688 LNVPLYTH 315 LNVPLYTH	25 56 85 23
SP-Z99259 SC-P24276-SSD1 SC-P39112	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	CE-Q09568-LOBO 6 SP-Z99259 7 SC-P24276-SSD1 9 SC-P39112 8

Fig. 2j



12/22	
835 QLFFKSKGIVSEEAYILFVRKNAIVVLIPKYGLEGTVFFEEKDKPNPQLI	
HS-HMC-Dis3 MM-hmc-Dis3 CE-Q17632-Dis3 SP-P37202-Dis3 SC-Q08162-Dis3 HS-LOBO HS-LOBO	CECU17308-11010

Fig. 2k



4	1	3/	22	2						-		
KVKVKIMLDSSNLQHQKIRMSLVEPQIPGIS	KVKVKITLDSSNLQHQKIRMALVEPQIPGIN	PVTVRISVNEKNQQRPRVELQLIKPAIPGLS	KPQTVQIQMFQQVRVRVTTVRDEHSGKQ	-AAFDEVEYKLTFVPTNSDKPRDVYVFDKVEVQVRSVMDPITSKR	-KVGKKPELTLVWEPD-DLEEEPTQQVITIFSLVDVVLQAEATALKYSA	KVGKKPELTLVWEPE-DMEQEPAQQVITIFSLVEVVLQAESTALKYSA	KSTEKLTIYWPADPNAESGNREEFSSSIQMCNVVYVIL-VPYKSIEVSA	VAPDDSSVKITLFDDSQ-KTIALTDRFQVYLYSDYSRTFFSI	DSATFIPADEKNPKSYRNSIKNKFRSTAAEIANIELDKEAESEPLISDPLSKELSDLHLTVPNLRLPSAS	DIVKNCKISKIDCLEGMLELEKL-	1 1 1 1 1 1 1 1 1 1	1321
DSSNLQHQKI	DSSNLQHQKIF	NEKNOORPRVI	QIQMFQQVRVF	DVYVFDKVEV	VITIFSLVDV	VITIFSLVEV	SIQMCNVVVV	TIALTDRFQVY	DPLSKELSDLE	IVKNCKISKIL		1311
/FDKVKVKIML	/FDKVKVKITL	SLEPVTVRISV	QPKPQTV	JSDKPR	EEEPTQQ	TEQEPAQQ	<i>NESGNREEFSS</i>)SX-K	KEAESEPLIS	Q	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1301
-YDDEIPSLKIED-TVFHVFD	-YDDEIPSLRIEG-TVFHVFDI	-IDVEEMSVKVNGDVVIKELE)	VEYVEDEYKLNIEIRDQPI	YKLTFVPTN	LTLVWEPD-DI	LTLVWEPE-DN	CTIYWPADPNA	JKITLFDE	PARETANTELE	rpmig		1291
YDDEIPSI	YDDEIPSI	IDVEEMS	VEYVEDE	AAFDEVE	KVGKKPEI	KVGKKPEI	KSTEKI	VAPDDSSV	RNSIKNKFRS	LHPSSMHYPMIG	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1281
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		FADEKNPKSY		1 1 1 1 1 1 1	1271
1	! ! ! !	1		1	 	1 1 1	1	1 1 1	DSATF]	1	1 1	1261
882	885	965	916	950	806	433	740	878	1120	934		
HS-HMC-Dis3	MM-hmc-Dis3	CE-017632-Dis3	SP-P37202-Dis3	SC-Q08162-Dis3	MM-LOBO	HS-LOBO	CE-009568-LOBO	SP-Z99259	SC-P24276-SSD1			

CKTINDMGNTTG--QLLTMATVLQVYESSFDVFIPEFGIEKRVHGDQLPLIKAEFDGTNRVLELHWQPGV

---SVPQNGFTGCVFPDLSFARGTLK-

LNYLKKL-----T'KLEPERTFDVMVT-

823 1052 890

SC-P24276-SSD1 SC-P39112

SP-Z99259

1201

1191

Fig. 2l

1241

1231

1221

SVYIAEYCKKHDKKSMPVQAFATRISGNSIDVYISEYGISNRVDLSSDDR-IKSFI-



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LOBO mouse
Wildtype mouse

Himon

MM11 (42055 5p)

MM11 (42055 5p)

AAAAA

S 5 4 3 2 1

Fig. 3

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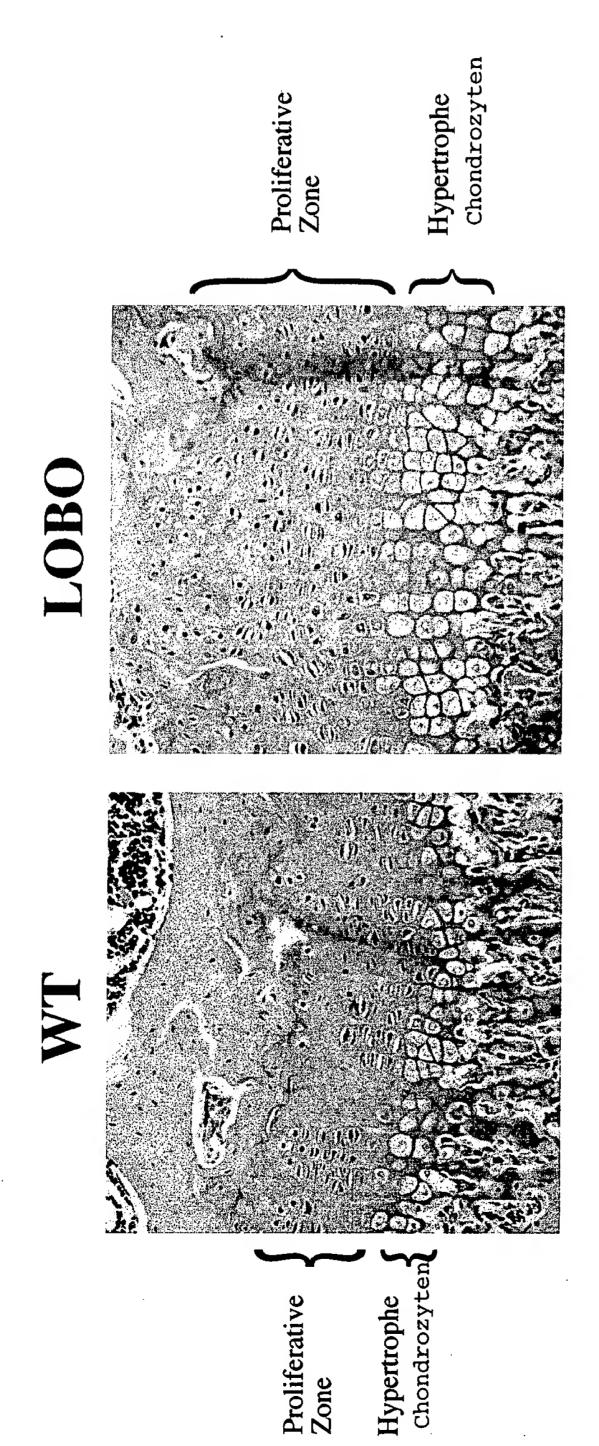


Fig. 4



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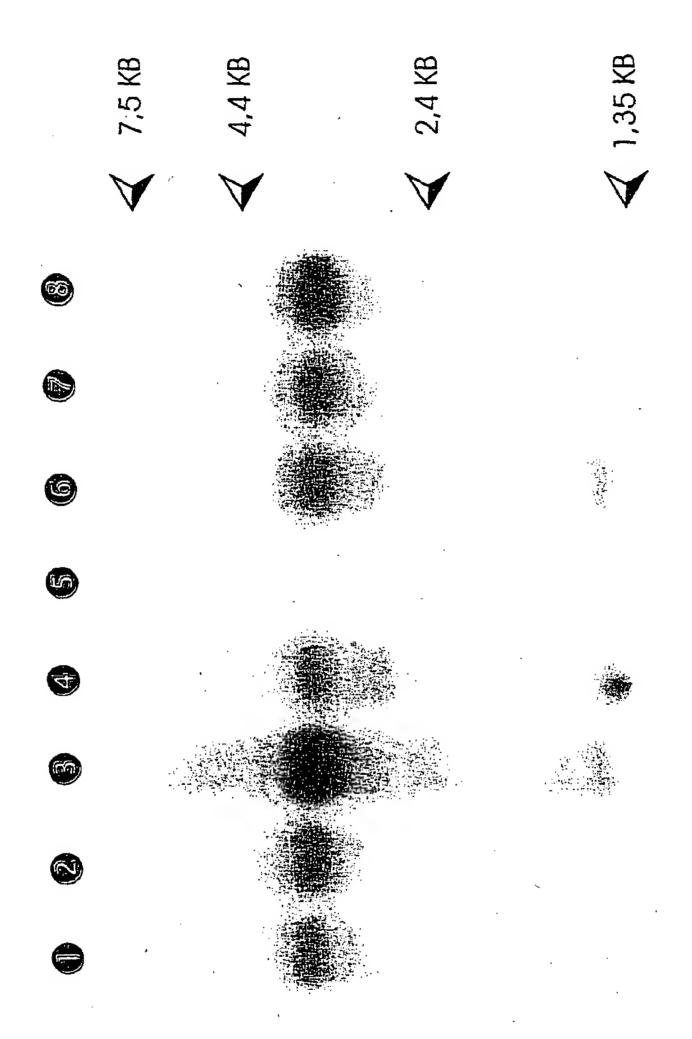


Fig. 5



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Dis3 Proteins

3/RNAse II

B

H.sapiens Dis3
S.cerevisiae Dis3
C.celegans Dis3
E.coli VACB
E.coli VACB
H.influenzae VACB
H.influenzae VACB
H.influenzae RNAse II
Mycoplasma pneumoniae VACB
H.influenzae RNAse II
S.pombe (RNAse like)
E.coli RNAse II
Mycoplasma genitalium VACB
S.cerevisiae RNAse B
M.crassa RNAse
M.musculus LOBO

Fig. 6



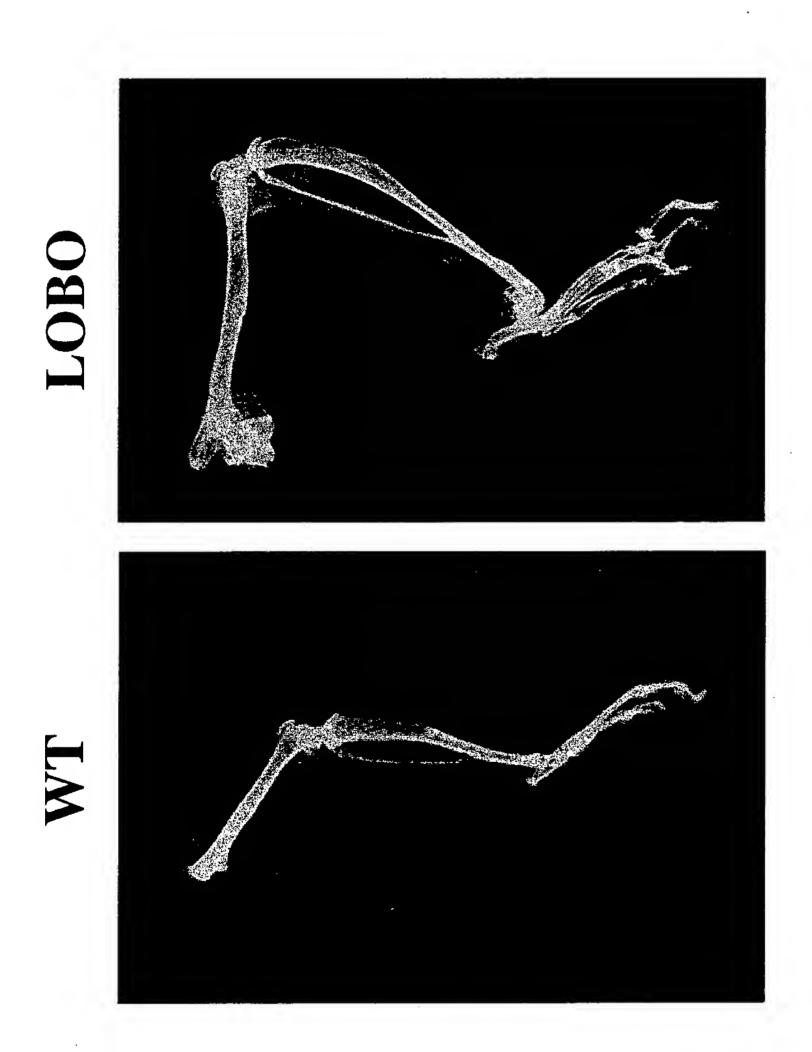
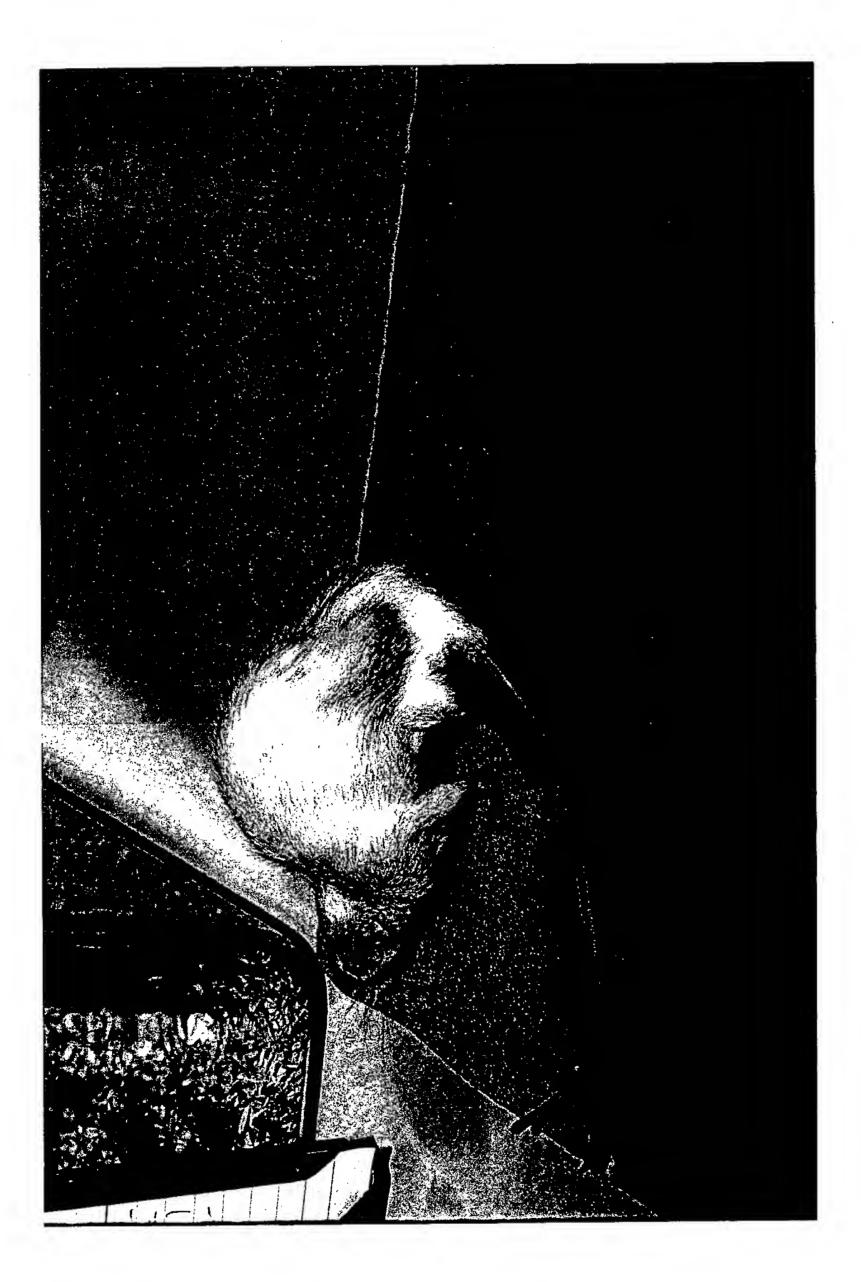


Fig. 7

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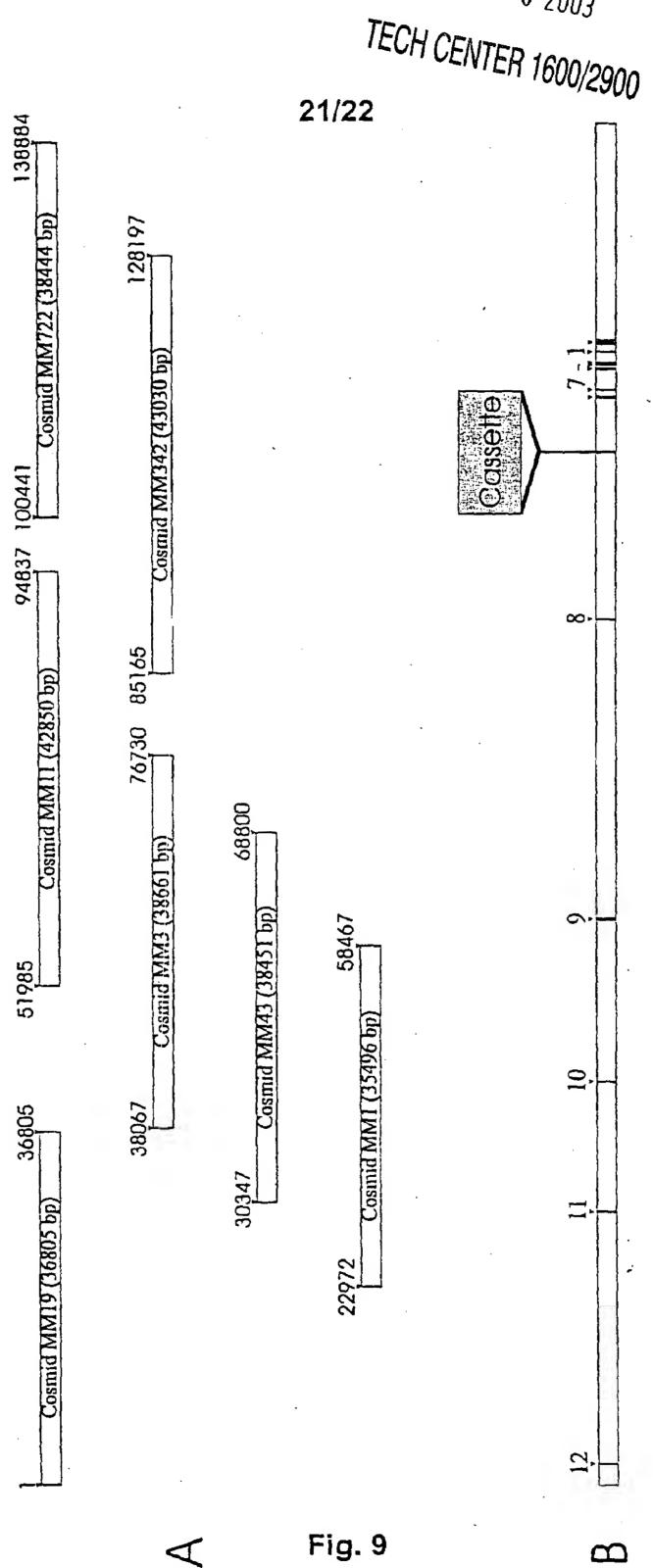
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Fig. 8



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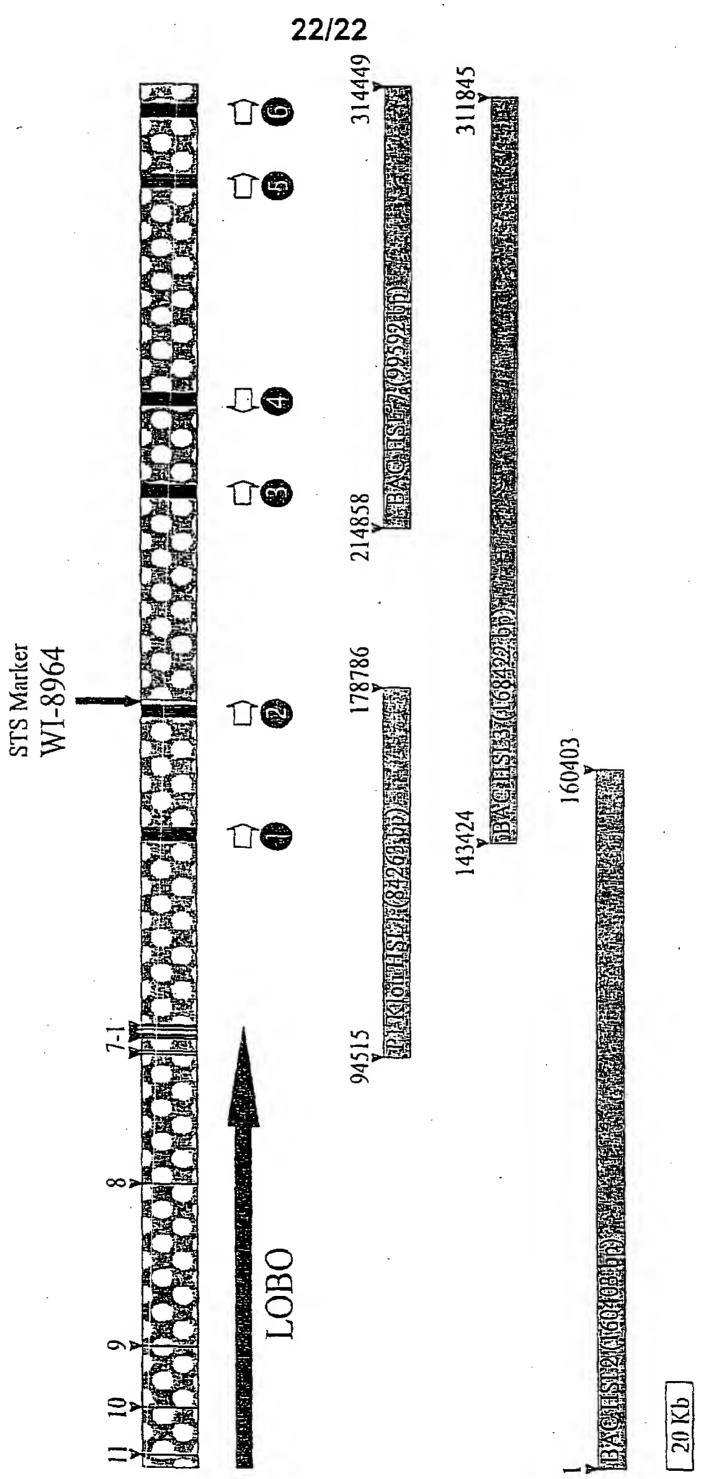


Fig. 10